REMARKS

Nearly all of this amendment and the following remarks were submitted in the after final amendment filed on May 1, 2006. This amendment also adds a new dependent claim 37. Although the advisory action denied entry of that amendment because it raised new issues, the Examiner preliminarily responded favorably to the amendments. Formal reconsideration and allowance of the subject application are therefore respectfully requested.

In the Examiner's response to arguments, the Examiner takes an unconventional reading of certain liquid crystal display terms including "bistable pretilt" and "bistable" as compared to the conventional meanings for these terms in the liquid crystal display device art. The claimed amendments simply define what those of ordinary skilled in the liquid crystal art already understand those terms to mean. Accordingly, entry of this amendment is proper.

The Examiner maintains the rejection of claim 17 arguing that the Nobili paper does not show a bistable pretilt. The Examiner does not consider the term "pretilt" to relate to the zenithal angle only, i.e., the degree of tilt of the liquid crystal molecules from the surface. But the Examiner is not correct in this interpretation. The term "pretilt" is a well known term in the liquid crystal display art, and its meaning, as understood by the skilled person, is consistent with how the term is used in this specification.

A liquid crystal (LC) material responds to applied electric fields. For a material with positive dielectric anisotropy, the LC material will align with the electric field, which is applied generally between the electrodes on the two cell walls. Hence, an applied electric field "tilts" a positive LC material to line up perpendicularly to the plane of the cell. The degree of tilt of liquid crystal molecules in the vicinity of an alignment surface before any field is applied is the

"pretilt." Therefore, a pretilt of 10° is independent of which direction the LC director is pointing within the plane of the cell.

The skilled person would clearly understand that the term "pretilt" refers to the zenithal angle only, and this commonly-understood meaning is borne out by the use of the term in prior art cited by the Examiner in the final rejection. See, for instance, Tsuda at al. (US 5,280,375), column 3, lines 29-38 which defines the pretilt angle exactly as used in this application. See also Li et al. (US 5,831,700) column 3, lines 30-35 or column 7, lines 31-35. Therefore, the term pretilt has a well known meaning in the art and means the degree of tilt from the surface, i.e., the value of the zenithal angle.

Consequently, a device having a bistable pretilt has one stable state having one pretilt angle from the surface and a second stable state having a second, different pretilt angle from the same surface. Because Nobili does not show a bistable pretilt, as explained in the last response, Nobili does not anticipate claim 17. Similarly, Nobili does not teach the required two different pretilts recited in claim 36.

Claims 17 and 36 have been amended, not to include narrowing features, but rather to include the wording that defines "bistable pretilt" in claim 17 and "two different pretilt angles" in claim 36. Claim 17 now includes the definitional language "where in a first stable state, liquid crystal molecules have one pretilt zenithal angle from the first surface, and in a second stable state, liquid crystal molecules have a second different pretilt zenithal angle from the first surface." Claim 36 now recites that two different pretilt angles are "two different pretilt zenithal angles from the first surface."

Regarding the rejection of claim 32 as being anticipated by Tsuda et al., the Examiner dismisses the fact that claim 32 recites a bistable device and argues that claim 32 could cover

Tsuda's device where there are two regions of monostable alignment. Applicants disagree.

Tsuda does not show two stable configurations, but instead, shows one stable configuration. Although the alignment of the liquid crystal molecules in the configuration shown in Tsuda varies across the plane of cell, in the absence of power (which is what "stable" is referring to), the liquid crystal always adopts the single configuration shown in Tsuda's Figure 1. Therefore, Tsuda lacks a first stable configuration and a second different stable configuration, as recited in claim 32. Tsuda's single stable configuration is formed from the interaction of multiple areas of different alignment rather than a single surface. A similar distinction applies to the rejection in view of Li et al.

To include explicitly what those skilled in the art would understand the term "bistable LC configuration" means, claim 32 is amended as follows: "A liquid crystal device being latchable between providing a first stable liquid crystal configuration and a second stable liquid crystal configuration...." This amendment makes clear that the stable liquid crystal configurations are configurations that can exist at different times. The term "latchable" means that the liquid crystal can be latched to one state or the other state. This is not possible with the devices in Tsuda or Li.

With regard to the rejection of claim 32 by Boyd et al., the Examiner appears to have not understood the difference between bulk effects and surface effects. The Examiner argues that both surfaces in Boyd, and the spacing therebetween, cooperate so that two stable states can exist and that the correct boundary conditions enable the device to work. New claim 37 explains that the first surface provides two different surface-stabilized pretilt angles to further emphasize the difference between a surface-stabilized state and a bulk state.

But claim 32 requires the first surface (singular) to provide the two different pretilt angles. Boyd requires both surfaces to be of a particular type and separated by the correct

distance in order to allow two pretilt angles to exist. Indeed, if one of the surfaces described in Boyd was used in a liquid crystal cell with a very large cell gap in order to effectively isolate the effect of one surface from the other, then Boyd's surfaces would not provide a bistable device. In contrast, it is the one surface itself in claim 32 which provides bistability. Even if the claimed device was used in a large cell gap device, the liquid crystal material at the vicinity of the first surface would still exhibit two stable pretilts. It is therefore submitted that one surface of Boyd does not "provide two different pretilt angles in the same azimuthal plane," as recited in claim 32.

Independent claim 26 remains rejected as being unpatentable in light of Tsuda in view of Tsuboyama (US 4,775,225). The Examiner does not address the arguments advanced in Applicants' prior response. But even if one could argue that Tsuda has a surface to provide two different pretilt angles, Tsuda fails to teach a cell wall for a bistable nematic liquid crystal device. Neither Tsuda nor Tsuboyama discloses or suggests a bistable nematic liquid crystal device cell wall that has "a first surface with a pattern surface profile to provide two different pretilt zenithal angles from the first surface in the same azimuthal plane to molecules of liquid crystal material." Nor is there any teaching that "the first surface provides the bistable nematic liquid crystal device two stable and optically distinguishable liquid crystal configurations."

The application is in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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